Lab 5 - Chi-Squared Test **Math 121**

The General Social Survey (GSS) asked this question: "Have you attended religious services in the last week?" Here are the responses for those whose highest degree was high school or above:

	Highest Degree Held			
	High school	Junior college	Bachelor's	Graduate
Attended services	400	62	146	76
Did not attend	880	101	232	105

1. Make a segmented bar graph showing the percent of people that attended religious services in the past week for each level of education. Which groups seem to be more religious?

2. We want to use the χ^2 test to determine if the association between highest degree attained and attendance at religious services is significant.

   (a) What is the null and alternative hypothesis?

   (b) What are the expected counts in the two-way table above, if the null hypothesis is true?

   (c) Use the expected counts to calculate the χ^2 test statistic.

(d) How many degrees of freedom does your χ^2 test statistic have?

(e) According to the χ^2 table (see p. 412 in the book), what is the p-value for this result? Is it statistically significant?

3. Remove the people with only a high school degree from the two-way table and repeat the χ^2 test. Are there significant differences between people with a degree beyond high school?

4. Summarize your conclusions about education level and religious attendance from the two χ^2 tests you preformed. Are there differences in religious attendance that are associated with education level? What are they? Explain.